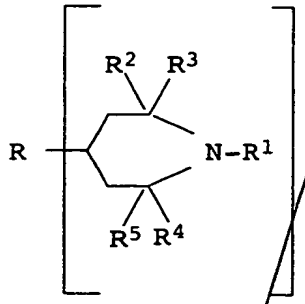
We claim:

1. A process for preparing polyamides, which comprises polymerizing starting monomers or starting oligomers in the presence of at least one compound of the formula (I)



(I)

where

R is a C_1-C_{20} aliphatic saturated hydrocarbon R^8 which bears 1-4 identical or different amide-forming groups R^7,

R^1 is H, C_1-C_{20}-alkyl, cycloalkyl, benzyl or OR^6, where R^6 is H, C_1-C_{20}-alkyl, cycloalkyl or benzyl,

R^7 is selected from the group consisting of -(NHR^9), carboxyl and carboxylic acid derivatives, R^9 being H, alkyl having from 1 to 8 carbon atoms, cycloalkyl having from 3 to 10 carbon atoms or alkylene having from 2 to 20 carbon atoms,

R^2, R^3, R^4 and R^5 are independently C_1-C_{10}-alkyl,

n is a natural number greater than 1,

the piperidine derivatives attached to R being identical or different with regard to the substituents, meaning R^1, R^2, R^3, R^4 and R^5,

wherein the compound of the formula I is added to the starting monomers or to the polymerizing reaction mixture and becomes attached to the polyamide through reaction of at least one of the amide-forming groups R^7.

2. A process as claimed in claim 1, wherein the piperidine derivatives attached to R are identical with regard to the substituents, meaning R^1, R^2, R^3, R^4 and R^5.

3. A process as claimed in claim 1 ~~or 2~~, wherein R^1 is H.

4. A process as claimed in ~~any of~~ claims 1 ~~to 3~~, wherein the R^2, R^3, R^4 and R^5 substituents on any one piperidine derivative are identical.

5. A process as claimed in ~~any of~~ claims 1 ~~to 4~~, wherein R^2 on any one piperidine derivative is methyl.

6. A process as claimed in ~~any of~~ claims 1 ~~to 5~~, wherein n is 2.

7. A process as claimed in ~~any of~~ claims 1 ~~to 6~~, wherein R is a group of the formula - NH $-R^8$ - NH - where R^8 is alkylene having from 1 to 20 carbon atoms.

8. A process as claimed in ~~any of~~ claims 1 ~~to 2~~, wherein R is - NH - CH_2 - CH_2 - CH_2 - CH_2 - CH_2 - CH_2 - NH - .

9. A process as claimed in ~~any of~~ claims 1 ~~to 8~~, wherein the polymerizing is carried out in the presence of at least one pigment.

10. The use of a compound (I) as set forth in ~~any of~~ claims 1 ~~to 9~~ for preparing polyamides.

11. A polyamide obtainable by a process as claimed in ~~any of~~ claims 1 ~~to 9~~.

12. The use of a polyamide as claimed in claim 11 for preparing filaments, fibers, films, sheetlike structures and moldings.

13. Filaments, fibers, films, sheetlike structures and moldings comprising a polyamide as claimed in claim 11.